PROGRESS
OF
MEDICAL SCIENCE

MEDICINE

UNDER THE CHARGE OF

W. S. THAYER, M.D.,
PROFESSOR OF CLINICAL MEDICINE, JOHNS HOPKINS UNIVERSITY, BALTIMORE, MARYLAND,
AND
ROGER S. MORRIS, M.D.,
FREDERICK FORCHHEIMER PROFESSOR OF MEDICINE IN THE UNIVERSITY OF CINCINNATI, CINCINNATI, OHIO.

A Study of an Epidemic of Trichinosis with Cures by Serum Therapy.—B. F. SALZER (*Jour. Am. Med. Assn.*, 1916, lxvii, 579) makes a preliminary report of his clinical and experimental studies on trichinosis. Most of his findings are new and many of them are of such importance, if confirmed, that the author's summary of his findings is given practically in his own words. The Kernig reaction was present in all of fourteen human cases. The reflexes in the lower extremities were abolished in all the cases and are still absent (six months). Trichinæ were found in the blood in nine of the 14 cases and in the cerebrospinal fluid in 8 cases. These and other less important points have been demonstrated previously and are confirmed by the author. His newer clinical and experimental results are chiefly as follows: The diazo reaction was in direct proportion to the degree of eosinophlilia. The leukocytosis diminished as the eosinophilia increased. The blood coagulation time was markedly prolonged. In a child three months old trichinæ were still present in the cerebrospinal fluid three months after clinical recovery. In one case trichinæ were found in a pleural exudate and the disease was reproduced by injecting this fluid; they were not found in the urine of any of the fourteen patients. Trichinæ were not found in the uterus but they were abundant in the placenta. The embryos were present in large numbers in the milk of a nursing woman, and were also present in a piece of excised mammary gland. In one case complicated by furunculosis, trichinæ were found in the pus of a furuncle of the external auditory canal. On inoculation of the pus into a rabbit, trichinosis were produced. The feces were clay-colored throughout the disease in every case. This color, the author believes, is due to reduction of the bilirubin by living trichinæ, whose presence in great numbers was demonstrated in one case by means of the duodenal tube. Trichinæ were present in the stools of all the cases throughout the disease. They were proved to be present by making the stools alkaline and allowing them to stand twelve to twenty-four hours. In experimental trichinosis, embryos were not found in the blood during the first five days. On the seventh day two or three were observed in every field. Trinchinæ were absent in the heart muscle. The use of serum from human patients who had recovered removed the eosinophilia persisting after recovery in man or animals within forty-eight hours. The injection of normal serum had no therapeutic value in man or animals, and the same was found true of salvarsanized serum and salt solution. In animals the injection of convalescent serum gives an almost complete prophylactic result. Animals fed with infected meat within twenty-four hours after the administration of the serum may develop a mild form of trichinosis. Animals fed at a period later than that prove to be immune. If immune serum is mixed with infected meat and then fed the animals do not develop trichinosis, although the injestion of the same meat without the serum is invariably followed by the disease. In 2 cases of trichinosis in the very active stage of the disease the use of immune serum proved to be of remarkable curative value. There was a decided drop in the temperature within six hours and the abnormal temperature was entirely gone within forty-eight hours. The eosinophilia showed a considereble drop within six hours; there was then a secondary rise and then a return to the figures found in normal blood within forty-eight hours. In twenty-four rabbits suffering from the disease experimentally produced the immune serum had a curative effect within twenty-four hours.

The Quantitative Determination of Amylase in Blood Serum and Urine as an Aid to Diagnosis.—P. Stocks (*Quart. Jour. Med.*, 1916, ix, 216) employed modifications of Wohlgemuth's method for determination of amylase and has made a special study of pancreatic disease to determine whether diagnostic aid might be secured by this means. He was lead to undertake the study because of the frequency with which cancer of the stomach and liver is found to be primary in the pancreas. The author gives in detail the technic of the method, together with observations on individuals with presumably normal amylase values. His application of the tests to patients with pancreatic and other diseases has led him to the following conclusions: Amylolytic ferment is present in the blood serum and urine of all healthy individuals, and has also been found in all the body fluids examined. The level is practically constant in the blood serum; the level in the urine is subject to diurnal variations due chiefly to the digestive functions. The ferment is of pancreatic origin and is absorbed directly by the blood. No proof of the action of anti-amylase has been found. Disease of the kidneys causing any diminished permeability of these organs reduces the amount of ferment in the urine, and consequently raises the amount in the blood. Any disturbance in the ratio D (blood): D and M (urine) indicates renal insufficiency. Severe passive congestion also raises the amount of amylase in the blood. With these exceptions, any increase of the ferment in the blood serum denotes pancreatic mischief. The values have been found raised in all cases of pancreatic disease, the increase depending on the degree of obstruction in any part of the gland or its ducts, and on the acuteness of the condition. The highest values were found in a case of acute pancreatitis. The estimation of the amylolytic capacity of the blood serum and the urine is a most delicate test of the efficiency of the pancreas, and consequently is a most delicate and reliable test for disease of the pancreas, the author states. The use of the simplified modification of Wohlgemuth's method, and the use of an identical technic for serum and urine are justified, he believes, by the consistency and regularity of the results obtained.

Carbon-monoxide Poisoning.—Y. Henderson (*Jour. Am. Med. Assn.*, 1916, lxvii, 580) gives a resumé of his observations on carbon monoxide poisoning. Many of the facts he mentions are, as he says the discoveries of Haldane, whose work is not sufficiently well known to practitioners. The author's summary is as follows: Carbon monoxide is a physiologically inert gas, except in its affinity for hemoglobin. Its toxic effects are wholly due to the inability of the blood combined with carbon monoxide to transport oxygen to the tissues. A permanent compound with hemoglobin is, however, not formed. In the presence of excess of oxygen, or even of pure air, carbon monoxide is rapidly given off and the oxygen carrying power of the blood is restored. The continuance of coma, the subsequent tissue degenerations, and death after several days, resulting from carbon monoxide poisoning, are not due to retention of the gas, but are the results of injury to the brain and other organs by the insufficiency of oxygen supplied to them by the blood while the patient was breathing the gas. There is no reason to believe that either bleeding or transfusion of blood is beneficial. They are more likey to be harmful. Fresh air—with oxygen inhalation as early as possible (within one-half hour)—symptomatic treatment, and good nursing are the only measures to be recommended. Practically the die is cast for death, permanent defects, or complete recovery at the moment when the patient is brought out of the asphyxial atmosphere. It is just possible theoretically that alkali therapy may be beneficial in combating the acidosis induced by asphyxia.

The Treatment of Arthritis by the Intravenous Injection of Foreign Protein.—J. L. Miller and F. B. Lusk (*Jour. Am. Med. Assn.*, 1916, lxvi, 1756) refer to the work of Kraus and of Lüdke, which showed that typhoid fever may be treated apparently as successfully with intravenous administration of colon bacillus vaccine as with typhoid vaccine. Lüdke later found that he could obtain similar results with a solution of proteose prepared by Drs. Jobling and Peterson. The authors then decided to apply this method of treatment to acute, subacute and chronic arthritides. As their supply of proteose was limited and as they believed the reaction was due solely to the foreign protein, they substituted a typhoid vaccine for the proteose. The bacilli from the Rawling's strain were killed by heating to 55° C. and were preserved by the addition of 0.5 per cent. phenol. In the preliminary cases a dose of 150,000,000 was given intravenously. "The reaction was the same as when the vaccine was given to a typhoid patient, except that the leukocytosis was much more marked, in two instances reaching

52,000. Immediately following the injection there was a moderate leukocytosis which increased slightly until the chill, which usually occurred in from five minutes to one hour. During or immediately following the chill, there was a rapid drop in the leukocytic curve resulting either in a normal count or a leukopenia, followed promptly by a rapidly developing leukocytosis, which reached its maximum usually at the end of four and occasionally at the end of twelve hours, gradually returning to normal in from twenty-four to forty-eight hours." Following the chill there was a profuse sweat lasting several hours. In three patients with acute arthritis there was a second chill which came on six to seven hours after the intravenous injection. A temperature of 105° was not unusual in the acute arthritides. Nausea and headache were practically always complained of after the chill. In three of ten cases of acute articular rheumatism, immediately following the intravenous injection of 150,000,000 killed typhoid bacilli, the fever terminated by crisis, the joint tenderness began to disappear, and within from twelve to twenty-four hours the joints were apparently normal. In these three cases the results were permanent. All of the seven remaining cases were very much benefited following a single injection, but the results were either not permanent or soreness remained in the affected joints. Three or four injections, however, sufficed to relieve all symptoms. Relapses nevertheless were frequent. The authors are now giving daily injections until four or five have been given in order to see if relapses can be avoided. Results quite as satisfactory were obtained in six cases of subacute arthritis of from three to nine months' duration. After three or four injections the patient could move his joints with comfort. Even better results were secured in cases of chronic gonorrheal arthritis of from two months' to three years' duration. All of seven cases showed decided benefit. The results appeared to be less satisfactory in two patients with acute gonorrheal arthritis. Complications in the joint cases such as endocarditis or pericarditis, seemed to be unaffected by the treatment. In gonorrheal arthritis, in fact, the urethral discharge was temporarily increased following the injection of vaccine. The treatment, the authors believe, deserves further trial. It is obvious that foci of infection, when found, should receive the usual treatment.

SURGERY

UNDER THE CHARGE OF

T. TURNER THOMAS, M.D.,

ASSOCIATE PROFESSOR OF APPLIED ANATOMY AND ASSOCIATE IN SURGERY IN THE UNIVERSITY OF PENNSYLVANIA; SURGEON TO THE PHILADELPHIA GENERAL HOSPITAL AND ASSISTANT SURGEON TO THE UNIVERSITY HOSPITAL.

Localization and Extraction of Projectiles and Shell Fragments.—Flint (*Ann. Surg.*, 1916, lxiv, 151), writing from his experience in a

French military hospital, says that there have been great differences of opinion expressed by military surgeons concerning the advisability of extracting or leaving projectiles or shell fragments either before or after they are healed in the tissues. He gives the following indications for extraction: (1) Instances where the projectile or fragment forms a focus of suppuration which will probably continue until either the fragment is removed or until it is discharged spontaneously from a fistula. (2) Instances where the foreign body is causing pain. This may be situated either in the muscles, near the bones or nerves, in tendons or even superficially. Not infrequently the pain may be due to the cicatrix surrounding the fragment rather than the fragment itself. (3) Instances where the wounds of entrance or exit have healed, leaving the projectile in the tissues surrounded by a small abscess or focus of infection encapsulated from the surrounding tissues. (4) Any interference with the function of the tissues or organs forms a rational indication for a removal of the offending foreign body. (5) Instances where the presence of the foreign body may influence the mental condition of a patient to a degree which justifies its removal. (6) Another group of cases which are of great importance in military surgery belong to the malingering type, who complain that shell fragments are painful in order to avoid the responsibility of further military service Such instances require removal in order to restore the wounded man to military service. (7) Cases where a lead projectile may give rise to lead poisoning. (8) When cases are brought in fresh from the front and operations are performed for infections, better drainage, removal of loose bone fragments in compound fractures, etc., the projectiles should be removed if possible. The contraindications may be briefly summarized as follows: (1) No operation should be performed which does more injury to the tissues than the presence of the foreign body. (2) The operations should not be performed in clean cases where there is not a reasonable expectation of aseptic healing or a great probability of finding the projectile. The methods for the localization of the foreign body must be suited to the requirements of the individual case. Radiography was not satisfactory. Up to the present time the vibrating magnet and the Sutton cannula with the harpoon are perhaps best adapted for immediate operation on cases fresh from the front, although their limitation must be constantly borne in mind. The profundometer of Irvin is by all odds the most useful and the most general in its application, and provides localization data upon which practically any extractor can be made.

Observations on the Diagnosis and Treatment of Trifacial Neuralgia.—Beckman (*Ann. Surg.*, 1916, lxiv, 242) studied 177 cases of trifacial neuralgia which came under his observation. A mistaken diagnosis is not often made by those who have seen a number of cases, A continuous aching pain or pain that throbs with the pulse is not trifacial neuralgia. The pain is very often started by the slightest irritation of a certain localized area on the face or tongue, and occasionally by the irritation of a single tooth, "doloro genetic zones" or "trigger zones." Beckman's cases have not appeared to be more neurotic than the average. An excision or evulsion of the peripheral nerve branches was done in 19 cases. The longest period of relief in any of the series was two years. In this patient the infraorbital nerve was evulsed and a screw placed in the foramen. Only five of the patients were relieved for one year or longer. The average time of relief was 8.4 months. In 146 patients the method of Levy and Baudoin was employed for injecting the main nerve branches at the base of the skull with alcohol. Letters have been returned from 120. The plan has been followed by injecting the second and third divisions of the nerve when one of them was involved. Occasionally some bleeding resulted, which produced considerable tension underneath the temporal fascia. In three patients, there was inflammatory reaction of the cornea which cleared up within a few days; in two there was temporary paraysis of the external rectus muscle of the eye, and in six, stiffness of the muscles of mastication, which gradually subsided. The latter were patients who had had several injections. In one instance the relief lasted five and one-half years, in another three years, and still another three and one-half years. However, only 30 were relieved for one year or longer. The average length of time for the whole series of 120 from whom letters were received was 9.4 months, a slightly longer average than the time of relief following the series of operations on the peripheral branches. Relief of pain for six months or less occurred in 77 of the 120 (64 per cent.). Beckman has had no experience with injections into the Gasserian ganglion, and thinks that if this method becomes generally adopted there will be many serious complications. Eighteen patients have had operations on the Gasserian ganglion. Eleven patients had the ganglion removed after the Hartley-Krause method, 1 was operated on by the method of Abbe, and 6 by the method of Frazier. Thirteen of the living patients have been completely relieved of their pain or the recurrences have been so slight that they consider their condition satisfactory. The remaining 3 patients have had recurrences, probably from incomplete operations. There were two operative deaths in this series. Beckman believes that the same number of patients operated on today would give approximately 100 per cent. permanent relief from pain. At the present time evulsing the posterior nerve root or removing the ganglion entirely is the only operation insuring permanent relief, and the mortality is no higher than that of many serious operations performed daily by surgeons throughout the country. It should be the operation of choice for a person in reasonably good physical condition.

More Radical Treatment of Duodenal and Gastric Ulcer.—Deaver (*Ann. Surg.*, 1916, lxiv, 294) says that where the ulcer is small and is located upon the anterior wall of the first portion of the duodenum it is his practice to exercise it, close the opening in the intestine, plicate the duodenum and make a posterior gastro-enterostomy. When an ulcer in this portion of the intestine is large, but extends short of the head of the pancreas, he amputates the duodenum below the lesion, purse strings it, inverts, excises the pylorus, and makes a posterior gastro-enterostomy. When the ulcer is on the posterior wall of the first portion of the duodenum and not too adherent to the posterior abdominal wall to permit of freeing the duodenum, he practises the same technic as in large ulcers upon the anterior wall. In acute perforation of a duodenal ulcer he makes a posterior gastro-enterostomy at the primary operation. He has now operated on 44 patients in this manner with but one death. He always treats the chronic indurated ulcer of the pylorus by doing a pylorectomy. When the induration of such an ulcer involves the lesser curvature in proximity to the pylorus, he does a subtotal gastrectomy. Posterior gastro-enterostomy does the greatest good when the pylorus is obstructed. In ulcers located other than at the pylorus does but little if any good. That this operation does any good by drainage alone, he thinks doubtful. It does most good when there is pyloric obstruction and when the ulcer is excised. When excision of the ulcer has not materially interfered with the mechanics of the stomach, with the exception of the pyloric ulcer, posterior gastro-enterostomy should not be done. To summarize, he has come to the conclusion that all ulcers of the duodenum or stomach are best treated by excision.

Observations on the Occurrence of Syphilis in the University of Michigan Obstetric and Gynecologic Clinic.—PETERSON (*Surg., Gynec. and Obst.*, 1916, xiii, 280) says that for the past year there has been a hospital rule that every in-patient should have a Wassermann taken, and the rule has been fairly well carried out. In 2000 patients there were 110 distinctly positive Wassermanns in which the diagnosis in almost every case was confirmed by the department of syphilology. Among the doubtful reactions there were 8 in which the patients were afterward proved to be syphilitic. This shows that 6 per cent. of the general run of hospital patients are syphilitic. Wassermann reactions should be taken routinely, especially where even careful histories fail to arouse suspicion of latent syphilis. The percentage of lues in 381 cases in the University Maternity was 4.7 as shown by the Wassermann reactions and expert physical examinations. In 18 cases of syphilis among the number examined only 8 gave a history of lues. In only the same number (8) were there positive physical signs of lues. As shown by the histories of the 18 cases there is a greater chance for the syphilitic mother treated by salvarsan and mercury to give birth to a living, full term child than where no treatment is given during pregnancy. The newborn infants of the mothers so treated do not give positive reactions, although undoubtedly they are syphilitic and later probably will show signs of the disease. A certain proportion of the newborn children of untreated syphilitic mothers will give positive Wassermanns. Out of 390 gynecologic patients subjected to the Wassermann test, 22, or 5.6 per cent., gave positive reactions. In only 5 of the 22 luetic patients was there a history of syphilis. Hence the importance of such examinations, or a serious general disease will be overlooked and the gynecologic patient will remain uncured.

The Transplantation of the Articular End of Bone Including the Epiphyseal Cartilage Line.—HAAS (*Surg., Gynec. and Obst.*, 1916, xxiii, 301) says that from his experiments and the results in general on transplanted bone the following conclusion is offered regarding the fate of bone after transplantation. Although each part of transplanted bone possesses the power to regenerate independently and without the aid of neighboring bone, this autonomous newly formed tissue does not possess that property which is necessary for a continued existence, and it will ultimately entirely disappear. Some additional stimulus is needed and such conditions are only obtained when the transplant is in direct contact with normal growing bone. Therefore, when there is failure of such connection the transplanted bone at first shows evidence of regeneration but if a sufficient time is allowed to elapse, it will ultimately entirely disappear. However, if it is united with the cut surface of normal bone it will continue to live because certain necessary additional stimuli and new elements will be supplied by the host. It is possible that certain chemical or physiological stimuli are supplied by the living intact bone, after which the regenerated bone on account of these additional factors is able to persist permanently. Undoubtedly some definite osseous elements from the bone of the host invade the transplant and either replace the temporary bone or give to it certain requisites for its perpetuation. Although function may play a factor in the development of bone it is not of prime importance in determining the permanency of that tissue.

THERAPEUTICS

UNDER THE CHARGE OF

SAMUEL W. LAMBERT, M.D.,

PROFESSOR OF CLINICAL MEDICINE IN THE COLLEGE OF PHYSICIANS AND SURGEONS, COLUMBIA UNIVERSITY, NEW YORK.

Specific Treatment of Infantile Paralysis.—Sophian (*Jour. Am. Med. Assn.*, 1916, lxvii, 426) writes concerning his experience regarding treatment in the present epidemic of infantile paralysis in New York City. He divides the treatment into: (1) relief of hydrocephalus; (2) intraspinal injection of serum; normal serum, horse serum or convalescent; (3) relief of special symptoms, as respiratory paralysis; (4) symptomatic general treatment, and (5) orthopedic treatment. Hydrocephalus with its pressure symptoms is most pronounced during the acute stage. In most cases it is only moderate, but not infrequently, especially in the cerebral cases, it is quite pronounced. In the latter the patients are often very stuporous, with twitchings, convulsions and respiratory embarrassment. Paralysis of the respiratory centre is the usual cause of death in infantile paralysis. Early relief of respiratory embarrassment is therefore important. One lumbar puncture usually suffices, but in some cases it must be done several times till relief is permanent. So far a highly immune serum for poliomyelitis has not been obtained. Sophian believes that the production of a hyperleukocytosis in the cerebrospinal fluid has a very distinct therapeutic value in the treatment of epidemic poliomyelitis. Such a hyperleukocytosis can be induced by intraspinal injections of normal horse serum or human serum. The objection to horse serum seems to be the sensitization to foreign protein; therefore, normal human serum would be preferable. In order to be of most value, the serum should be used very early in the disease, during the acute inflammatory stage, if possible in the preparalytic stage, especially if prevention of paralysis and abortion of the disease is to be looked for. The use of a blood serum obtained from cases convalescent from poliomyelitis offers the advantage of a human serum plus the presence of immune bodies. That serum obtained from at least recently convalescent cases contains immune bodies has been proven by the neutralization test in the monkey. Netter reported the use of convalescent serum in thirty-two cases, with excellent results. With regard to the effects produced by the intraspinal injection of various forms of serum, Sophian states that in a series of cases treated by convalescent serum, the results were certainy no better than in those treated by normal horse serum. In the normal horse serum series, two cases treated in the preparalytic stage were aborted and one case was aborted under the convalescent serum treatment. The best results were obtained in early cases but some of the late cases treated showed more improvement than is generally seen in untreated cases. There was more rapid convalescence and improvement in the paralytic condition. Sophian has had very little experience with the local administration of epinephrin. Respiratory paralysis is the most common cause of death in infantile paralysis. It is therefore of prime importance to meet this complication early, so as to tide the patient over the critical period until congestion and inflammation about the respiratory centre subside. In comatose patients, the pharyngeal respiratory apparatus has been suggested by Meltzer and for conscious patients, if possible early after respiratory difficulty has set in, the administration of oxygen under pressure by the method of Meltzer may be of value. General treatment is very important as the patients are frequently helpless and require especial care as to feeding and care of bowels and bladder. Orthopedic treatment should be begun as early as possible after the acute symptoms subside.

The Treatment of Tuberculosis with Cyanocuprol.—Otani (*Jour. Exper. Med.*, 1916, xxiv, 187) reports the results of treatment in eighteen cases of tuberculosis, in a numbr of which very favorable results were obtained, although in some absolute failure was noted. He believes that cyanocuprol is markedly effective in tuberculosis and that it will play an important part in clinical medicine. It may be used more generally than tuberculin. The amount of the dose is closely related to the reaction and the final results. It should be determined for each patient after a careful examination of his symptoms. The maximum dose of 8.5 c.c. should in no case be exceeded. The shortest interval between injections should be two weeks. If the drug is given after a shorter interval, no improvement is observed and the effects are sometimes dangerous. In order to obtain the best results the patient should be placed under conditions of complete physical and mental rest after the injection; this applies even to light cases. During the period of the treatment irritants to the lesion, such as potassium iodide or tuberculin, should be avoided; apricot juice, guaiacol and its derivatives and iodol are contraindicated. No marked idiosyncrasy has been noted and no accumulative effects have been observed.

Metabolism Studies Before and After Splenectomy in Case of a Pernicious Anemia.—Pepper and Austin (*Arch. Int. Med.*, 1916, xviii, 131) report metabolism studies in a case of pernicious anemia before and after a splenectomy which was performed for therapeutic effect. The patient was an adult with pernicious anemia of a moderately hemolytic type in whom the splenectomy was followed by the disappearance of the discoloration of the skin and by prompt and persistent improvements in the condition of the blood and general health. Metabolism studies before and after splenectomy gave the following results: A slight positive nitrogen balance before splenectomy was followed by an increased nitrogen retention fourteen days after operation and a return to the preoperative balance after one month. The output of uric acid, although never exceeding normal limits, showed a decrease of 22 per cent. after operation. The output of iron through the feces, although never above normal, showed a decrease of 40 per cent. after operation. The excretion of urobilinogen and urobilin in the feces before splenectomy was about three times the normal; two months after operation the output was about one-seventh of that before splenectomy.

Results Obtained in the Treatment of Diabetes Mellitus.—Joslin (*Bost. Med. and Surg. Jour.*, 1916, clxxv, 147) says that during the year ending May 1, 1915, 211 cases of diabetes came under his observation, and of this number 31, or 15 per cent., died; during the subsequent year 314 cases were seen and 37, or 11.7 per cent., have died. These figures represent a decrease in mortality over the previous year of about 20 per cent. Joslin says these figures are encouraging, but they become still more so when it is considered that a study of the 37 fatal cases seen this last year shows that death might have been deferred in about one-half of these if the methods of treatment now in general use had been adopted. The author states that in a study of the causes of death of 408 cases of his series, it was found that two out of every three (66 per cent.) died of coma, that 87 per cent. of all these who succumbed during the first year of the disease died of coma, and that this was the case in 100 per cent. of the fatal cases in children. Therefore, if the mortality of diabetes is to be reduced, our energies should be directed first toward the avoidance of coma, because the treatment of coma is so unsatisfactory; and second, particular attention should be exercised in the management of cases of diabetes in the first year following the disease. Furthermore, all cases should be persistently followed up, and the good effects of treatment not be allowed to lapse by indifference or neglect.

The Rate of Absorption of Various Digitalis Preparations from the Gastro-Intestinal Tract.—Haskell, McCants, and Gardner (*Arch. Int. Med.*, 1916, xviii, 235) found that the infusion of digitalis seems to be absorbed more slowly than the tincture in animal experiments that they conducted. They also tested some of the special digitalis preparations which have been claimed to possess a more rapid rate of absorption from the gastro-intestinal tract than official digitalis preparations. The three special preparations of digitalis, namely, digipuratum, digalen, and digipoten, seem to possess no decided advantage over the official tincture. Their chief practical disadvantage is their high comparative cost. Digipuratum in their experiments seemed to be absorbed less rapidly than was the tincture. The sample of digipuratum tested was somewhat stronger than the official tincture, but this did not nearly compensate for the difference in absorption. Digalen was absorbed more rapidly but the variability in strength and the low standard of strength (only about one-fourth the physiological activity of the tincture), together with the relatively high cost of this preparation, more than offset this possible advantage.

The Treatment of Amebic Dysentery.—Bates (*Jour. Am. Med. Assn.*, 1916, lxvii, 345) says that one of the first and most necessary factors in treatment, whether the case is mild or severe, is complete rest. The patient is put to bed and given a saline purge or castor oil. He is kept in bed until all the acute symptoms have subsided. After the purgative has acted, emetin or ipecac is begun. Bates advises one-half grain injections of emetin daily for an adult until two grains are given. The dose is then increased to one grain a day and continued until all amebæ disappear from the stool. This will usually require a total of from five to six grains of emetin. At this time the emetin is discontinued and bismuth subnitrate in large doses is begun. Bismuth acts in two ways: (1) as a sedative on the intestinal tract and as an aid toward the healing of the ulcers present; (2) as was first pointed out by Deeks, bismuth itself acts as an amebicide and is an added help in destroying such amebæ as may be left or those that may be formed from the "encysted stage." Bismuth is usually given in one dram doses every four hours until the stools are well formed, and until some constipation is present. It may then be reduced to one dram, three times a day until the patient is discharged as well. Enemas of normal saline solution, 2 or 3 quarts at a time, are begun as soon as the effect of the salts or castor oil has subsided, and are used every four hours during the waking hours, and continued in this quantity throughout the entire period of the administration of ipecac or emetin. They may then be reduced to two or three a day and later to one a day, merely to prevent the constipation following the bismuth. Experience has shown that sweet milk is the best food in amebic dysentery. It may be given every two hours during the day in quantities of from 4 to 8 ounces at each feeding. After the more acute symptoms have passed and the stools are beginning to be formed, the milk may be gradually increased in amount and the intervals between feedings lengthened. Soft-boiled or poached eggs may be added to the diet with one slice of dry toast at each feeding. To carry out this treatment until one is reasonably sure that all ulcers are healed will require in the acute cases at least four weeks time and in the more severe cases from six to eight weeks. Bates is confident that the treatment just outlined will effect a cure of amebic dysentery in a large majority of cases. Nevertheless it must be expected, especially in the tropics, that some cases will be encountered so far advanced that no treatment can be of help. Occasionally relapses will occur in spite of the treatment outlined. In cases when two or three efforts at treatment by medicinal means have failed, appendicostomy will have to be advised. After this the colon should be flushed out several times a day with saline solution, followed by powdered ipecac suspended in some bland material, such as mucilage acacia.

Dietary Deficiency as the Etiological Factor in Pellagra.—Vedder (*Arch. Int. Med.*, 1916, xviii, 137) in his conclusions states that there is a certain similarity between pellagra and other known deficiency diseases, namely, beriberi and scurvy. Much of the evidence that has been presented as a proof of the infectious nature of pellagra can be reasonably explained in accordance with a deficiency hypothesis. A deficiency is demonstrable in the diets of most pellagrins. This deficiency appears to result from the too exclusive use of wheat flour, in association with cornmeal, salt meats and canned goods, foods that are known to be deficient in vitamins. Changes in the diet of the people of the South have occurred during the past ten or fifteen years. Since all the changes that have occurred are not known and they cannot judge accurately the importance of the known changes, it is unscientific to assume that the recent increase in pellagra cannot be due to such changes. The hypothesis that pellagra is caused by a deficiency is very plausible and must be taken into consideration in subsequent studies of this disease.

Hay Fever. Its Treatment with Autogenous Vaccines and Pollen Extract.—Medalia (*Bost. Med. and Surg. Jour.*, 1916, clxxv, 201) says that the bacteria found in the secretions of the nose and eyes of hay fever patients previous to their attacks and during their supposedly healthy condition are markedly suggestive of the important role played by such bacteria and their products. They are, he believes, the determining factor between individuals being susceptible to hay fever or not, since they may be, in a measure, responsible for the breaking up of the pollen, setting free the albumens and thus causing pollenosis. The bacterial infection, though secondary to pollenosis, is apparently responsible for the difference between pollenosis, producing a mere transient sneezing, or true hay fever attacks with all their accompanying symptoms. The good results obtained by the use of autogenous vaccines, as reported in the literature and his personal results, suggest to the author the important relation of bacteria to this disease. He reports six cases treated with a combination of autogenous vaccines and pollen extracts, all resulting in "seasonal cures." The results in these cases have been so decidedly beneficial that he believes the conclusion is justified—that the autogenous vaccine has yielded better results in the treatment of these hay fever patients than any other therapeutic procedure thus far suggested in the treatment of this disease.

PEDIATRICS

UNDER THE CHARGE OF

THOMPSON S. WESTCOTT, M.D., AND FREDERICK O. WAAGÉ, M.D.,

OF PHILADELPHIA.

Care and Feeding during the First Month.—Pisek (*Arch. Pediat.*, 1916, xxxiii, No. 6) states that in spite of marked decrease in the infantile mortality, that of the first month of life is still woefully too high, and can be lowered only by active measures of prevention and correction. In spite of the well-known fact that babies thrive so much better on breast than on cow's milk, and that 85 per cent. of all infantile deaths are among those artificially fed, many are still removed from the mother's breast for insufficient reasons by the physician or nurse. Their decision is often based on the fact that no milk has appeared in forty-eight or seventy-two hours, or upon one hasty or inaccurate examination of the milk, or because of vomiting or an occasional abnormal stool. Every effort should be made to enable the baby to have the breast alone, or at least part breast feeding during this first month of life, for, while it will apparently do well for ten days or two weeks on a formula, its resistance then breaks down and its digestion becomes sadly disturbed and is hard to correct. Even a small amount of breast milk aids in the digestion of the cow's milk. If artificial food must also be supplied it should be a weak formula, low in fats and proteins, although high in sugar. An amount of food necessary to produce a gain in weight need not be given, or, in other words, the caloric requirements are not to be fulfilled until the end of the second week is reached. The three-hour interval is preferable, for, although the newborn infant can be trained to take the breast at four-hour intervals, it is not a natural interval, and unless vigorous, he is apt to need, in addition, artificial food. Weighing before and after a nursing throughout at least one whole day is essential in questionable cases to determine just how many ounces he is receiving. The author's experiments with the Roentgen-rays on infants' stomachs proved conclusively that babies can take an amount far in excess of their rated gastric capacity, because the milk tended to pass at once into the duodenum.

Acute Poliomyelitis: The Clinical Types of the Disease.—KOPLIK (*Arch. Pediat.*, 1916, xxxiii, No. 8) says that poliomyelitis is primarily an epidemic disease, and as a sporadic condition has attracted very little notice. The sporadic cases do not differ clinically from the epidemic type of the disease. An attempt to connect this disease with the occurrence of cases of cerebrospinal meningitis, has broken down to give place to the feeling that poliomyelitis is an entity, clinically occurring in epidemics in the late spring to late autumn. We owe much of our clinical knowledge of the disease to Media, who described the clinical types of acute epidemic poliomyelitis in 1884, much to the astonishment of most pediastrists, who still retained the simple picture as portrayed in older text-books of poliomyelitis anterior, as a simple infantile paralysis. This old conception of poliomyelitis, which without prodromata, was followed by an overnight paralysis of one or more extremities, has been lost sight of in the more thorough modern clinical analysis of the symptomatology of the disease, and we can now describe the following types: (1) The abortive; (2) the bulbospinal; (3) the cerebral and meningeal; (4) the bulbopontine. These types may be easily understood if we conceive poliomyelitis to be an acute infectious disease, and to the extent to which the infection goes, to that extent do we obtain a symptomatology, so that the old descriptions of the disease as an involvement of the ganglion cells of the anterior bones of the spinal cord must today be looked on as a small fractional part of the story. The abortive is probably from a scientific epidemiological standpoint the most important type of the disease, for it is through these cases that the disease is spread to others. It is the type which does not go into paralysis, and with recovery leaves the patient uninjured as to the muscular motor apparatus. In an epidemic, fever, headache, vomiting, slight rigidity of the neck, increased or diminished reflexes at the knee must be carefully observed for further development. Aside from an epidemic few would give such symptoms a place other than among the extremely indefinite signs of an affection. The meningitic and cerebral types should be combined, because of the cerebral symptoms which give rise to a picture closely simulating meningitis. The meningeal form runs its course with cerebral symptoms due to a real injection of the meninges of the brain and cord. The bulbar or pontine type of the disease is another form which has only been recognized lately and deserves notice as a distinct form of poliomyelitis.

OBSTETRICS

UNDER THE CHARGE OF

EDWARD P. DAVIS, A.M., M.D.,

PROFESSOR OF OBSTETRICS IN THE JEFFERSON MEDICAL COLLEGE, PHILADELPHIA.

Acidosis Complicating Pregnancy.—Ely and Lindeman (*Am. Jour. Obst.*, July, 1916) report the case of a multipara who in her first pregnancy had great disturbance of digestion without definite symptoms of nephritis, but with acetone and diacetic acid in the urine. Labor was normal, but the child suffered from vomiting and disturbance of digestion. During the second pregnancy acetone and diacetic acid were present at the second month, and vomiting occurred. Rapid loss of weight followed. Use of alkalis and irrigation of the colon produced no effect. Rectal feeding did little good. Pulse and temperature continued normal, but the patient became profoundly toxemic. In the thirteenth week of pregnancy the uterus was emptied. This had no effect upon the vomiting. Analyses of the blood were then made, and direct transfusion was practised, taking the blood of the husband of the patient. This was done after the blood of twelve other persons had been examined to find one most suitable. For twenty-four hours before transfusion the donor was given large doses of bicarbonate of sodium; the effect upon the patient was surprising. At 12.30 P.M. 400 c.c. of blood was taken from the patient and 1100 c.c. transfused from the donor, with 300 c.c. of Lock's solution. Beginning two hours after transfusion the patient was given predigested food every two hours, with soda solution in the bowel every four hours. The patient vomited but three times in the next twenty-four hours, and after that was able to take diet and preparation of iron. A second transfusion from the same donor was given, using a smaller quantity, and the patient went on to uninterrupted recovery. Before the transfusion the percentage of urea in the blood was low, and this increased decidedly after the transfusion. Blood ammonia was undoubtedly high before transfusion, for three days after it was more than twice the normal. It is interesting to note that the carbon dioxide of the blood plasma was 55 per cent. before transfusion, and that after transfusion this rose to 94 per cent. This valuable report should draw attention to the importance of acidosis in the toxemia of pregnancy. It will be observed that there was no evidence of kidney involvement, that emptying the uterus did no good, and that the only efficient measure consisted in correcting the condition of the blood. Transfusion by the syringe method is comparatively simple and safe. If the possibilities of acidosis should be kept in mind in all cases of toxemia, a prompt diagnosis and efficient treatment after the method employed by these writers should be tried.

Labor following Ventral Suspension.—Caldwell (*Am. Jour. Obst.*, July, 1916) reports three cases of labor complicated by ventral suspension in which serious conditions developed. The first patient was a multipara who had a curetting, repair of the perineum, and ventral suspension of the uterus. The following pregnancy had preceded normally, but at its close it was found that the fetus was in transverse position and that this could not be corrected by external manipulation. The patient was admitted to Bellevue Hospital with slight pain. On examination the cervix was high, and pointing directly backward and toward the promontory. It was partially softened and admitted two fingers. No presenting part could be made out. Six hours after admission the membranes ruptured, the uterus was in tonic contraction with a beginning retraction ring. The cervix was high, pointing directly backward toward the promontory, and there was dilatation for three fingers. Under anesthesia the head and a foot were found in the lower segment, and a slow podalic version was done; the cord did not pulsate but the patient was allowed to come out of the anesthesia. A tight binder was applied with the hope that the patient would deliver the fetus in breech presentation. Very slight traction was maintained on the child's foot. Although the cervix completely dilated, and pains were good, there was no advance. The patient was again anesthetized and slow breech extraction performed; the aftercoming head was perforated and delivered. Following the birth of the child there was copious bleeding, and the patient became severely shocked. On removing the placenta by the hand a tear of the cervix on the right side was discovered. A hot intra-uterine douche was given and the cervix and vagina firmly packed, and the patient stimulated, but death occurred in less than two hours without further bleeding. At autopsy very dense fibrous adhesions were found between the anterior surface of the uterus and the abdominal wall. On the right side a tear extended obliquely upward for 12 cm. with bleeding into the right broad ligament. A well-marked retraction ring was still present. The second case was a primipara who had previously an operation removing the right ovary and appendix. A year after she had a second operation for adhesions. A third operation was done to free adhesions. She was admitted to hospital thirty-two weeks pregnant, with the history of almost constant abdominal pain. The abdomen was rigid and tender. The stomach was distended but the intestines were not. The uterus was contracted and adherent to the abdominal wall. The cervix was high above the promontory, directed backward; the external os admitted one finger; the internal was closed; there was a slight discharge; the membranes unruptured. The patient was given morphin, but after fourteen hours the cervix did not dilate and section was performed. On opening the abdomen the adhesions were so dense that an opening was made into the sigmoid; injuries to the intestine were immediately repaired. A dead male child was delivered by section, followed by hysterectomy. The operation was followed by persistent vomiting and distention, with death forty hours after. The third case was a multipara admitted to hospital previously with premature separation of the placenta treated by section, followed by complete recovery. She was next admitted to the hospital in the thirtieth week of her pregnancy, with sharp pain in the abdomen followed by vomiting. The abdomen was relaxed and a seven months' fetus could be felt apparently directly underneath the skin; the cervix was hard and did not dilate. There was bleeding at intervals with foul discharge. On section a sac was found in the abdomen containing a dead macerated fetus in foul-smelling pus and gas. The sac was adherent, gangrenous, and removed with great difficulty. Death followed operation. These interesting cases give added testimony against the operation of ventrosuspension in all women during the child-bearing period. When this condition is complicated by pregnancy delivery by section is invariably the safest procedure. The second point of interest is the difficulties caused by extensive adhesions. The reviewer's experience has led him to consider extensive adhesions complicating pregnancy as one of the most difficult and dangerous complications. In one patient a successful Cesarean section was followed some years later by a second operation for the removal of an ovarian tumor complicating the second pregnancy. This proceeded smoothly; the operation was done in early pregnancy because the tumor had become wedged in the pelvis and its pedicle twisted. A smooth recovery followed this, and a second delivery by abdominal Cesarean section was performed later on. At this last operation extensive adhesions between the remains of the right broad ligament, whence had been taken the tumor, and the uterus were present. The emptying of the uterus caused traction on these adhesions and ruptured a large vein in the right broad ligament. The hemorrhage was alarming, but immediately repaired. During the next few days obstruction of the bowels developed, caused by adhesions between the bowels and the torn broad ligament, and although the abdomen was reopened, the patient did not survive. In a second case who had had a Cesarean section, a second section was necessary, and hysterectomy was requested. Adhesions were so extensive that in closing the broad ligaments and stump, the ureters were occluded by pressure. This was subsequently discovered by catheterizing the ureters; the abdomen reopened; the obstruction removed, and the patient making a complete recovery.

Two Cases of Weak Uterine Scars following Cesarean Section.—Beck (*Am. Jour. Obst.*, July, 1916) reports the case of a patient, aged twenty-seven years, who had been delivered two years previously by

Cesarean section. After twenty-four hours' labor the patient was sent to hospital by a midwife. She was delivered by Cesarean section but had fever during the puerperal period; the woman became infected and opened down to the peritoneum. Six weeks later the patient returned to the clinic with a hernia at the site of the abdominal incision. When pregnancy subsequently developed there was a thinned-out scar on the anterior wall of the uterus through which the fetal parts could be very easily outlined. The patient was within ten days of term, and it was thought best to have her enter the hospital. A second section was performed and the anterior surface of the uterus and omentum were densely adherent to the abdominal wall, and the uterine scar was very much thinned. The uterus was opened through these adhesions, making the operation extraperitoneal. Mother made an uninterrupted recovery and the child was in good condition. The second patient was also aged twenty-seven years, and in a previous pregnancy had eclampsia. At this time she was delivered by Cesarean section, mother and child leaving the hospital on the twenty-fifth day. At the end of the second pregnancy she returned to the hospital in labor, the fetus lying obliquely with the breech in the left iliac fossa and the head in the right upper portion. The cervix was almost dilated and membranes unruptured. Under anesthesia it was impossible to move the head, which was bulging through the thinned-out scar of the previous section. The membranes were ruptured, a foot was brought down, and the child delivered by breech extraction. During the delivery the lateral mobility of the head was restricted until the breech had descended far enough to allow the head to be pushed out of the bulging portion of the uterus.

The Puerperal Period Complicated by Sarcoma of the Ovary.—Brodhead (*Am. Jour. Obst.*, July, 1916) reports the case of a negress, eighteen years old, who came to the hospital when pregnant and had a normal delivery with living child. The third day after delivery the temperature rose to 102.5° with rapid pulse, and the patient complained of pain and tenderness, with rigidity in the right inguinal and lumbar regions and in the epigastric and upper umbilical region. The leukocytes were 17,000. On the next day the fever was higher, the tenderness and rigidity increased, and on vaginal examination tenderness was found. Eight days after delivery a mass could be palpated in the right lower quadrant, tender, elastic, and movable, and a diagnosis of abdominal tumor was made. The blood count showed 21,000 leukocytes. On section a sarcoma of the right ovary was found and readily removed, the patient making a good recovery.

The Care of the Perineum after Labor.—Plass (*Johns Hopkins Hosp. Bull.*, 1916) compared the results in two groups of cases. In one the usual routine of antiseptic cleansing was employed. In the other the patient herself used tap water and soap and a wash cloth. In both groups the morbidity was practically the same. In another series of cases in which there had been laceration, and stitches had been taken, better results were obtained without antiseptic irrigation. The wounds healed more satisfactorily and there was a smaller percentage of infection and other complications.